"The E. coli strain pop2135 which was deposited on 31.01.1996 at the "Deutsche Sammlung von Mikroorganismen und Zellkulturen GmbH", Mascheroder Weg 1b, D 38124 Braunschweig under the file number DSM 10509 is particularly preferred."

IN THE CLAIMS:

Please amend the claims as follows.

1. (Amended) A process for production of an S-layer protein comprising

(a) transforming a gram-negative prokaryotic host cell with a nucleic acid encoding an S-layer protein selected from the group consisting of

(i) a nucleic acid comprising a nucleotide sequence from position 1 to 3684 of SEQ ID NO.1,

(ii) a nucleic acid comprising a nucleotide sequence corresponding to the nucleic acid of (i) within the scope of the degeneracy of the genetic code, and

(iii) a nucleic acid comprising a nucleotide sequence which hybridizes with at least one of the nucleic acids of (i) or (ii) under stringent conditions;

(b) culturing the host cell under conditions which induce expression of the nucleic acid and production of the corresponding protein, and

(c) isolating the protein from the host cell.

2. (Amended) The process as claimed in claim 1, wherein the gram-negative prokaryotic host cell is an E. coli host cell.

3. (Twice Amended) The process as claimed in claim 1, comprising isolating the protein from the interior of the host cell in the form of an assembled S-layer structure.

4. (Twice Amended) The process as claimed in claim 1, wherein the nucleic acid encoding the S-layer protein comprises at least one insertion encoding peptide or polypeptide sequences.

5. (Amended) The process as claimed in claim 4, wherein the insertions are selected from the group consisting of nucleotide sequences encoding cysteine residues, regions with several charged amino acids or tyrosine residues, DNA-binding epitopes, metal-binding epitopes, immunogenic epitopes, allergenic epitopes, antigenic epitopes, streptavidin, enzymes, cytokines, and antibody-binding proteins.

6. (Amended) The process as claimed in claim 5, wherein the insertions encode streptavidin.

7. (Amended) The process as claimed in claim 5, wherein the insertions encode immunogenic epitopes from a herpes virus.

8. (Amended) The process as claimed in claim 5, wherein the insertions encode enzymes comprising polyhydroxybutyric acid synthase or bacterial luciferase.

Sub D1

9. (Amended) The process as claimed in claim 5, wherein the insertions encode cytokines comprising interleukins, interferons or tumour necrosis factors.

C2

10. (Amended) The process as claimed in claim 5, wherein the insertions encode antibody-binding proteins comprising protein A or protein G.

11. (Amended) The process as claimed in claim 5, wherein the insertions encode antigenic epitopes which bind cytokines or endotoxins.

12. (Amended) The process as claimed in claim 5, wherein the insertions encode metal-binding epitopes.

13. (Twice Amended) The process as claimed in claim 1, wherein a nucleic acid encoding a gram-positive signal peptide is arranged in operative linkage at the 5' side of the nucleic acid encoding the S-layer protein.

Sub 92

14. (Amended) The process as claimed in claim 13, wherein the nucleic acid encoding the signal peptide comprises

(a) a signal peptide-coding region of the nucleotide sequence of SEQ ID NO. 1,

(b) a nucleotide sequence corresponding to the nucleotide sequence of (a) within the degeneracy of the genetic code, or

(c) a nucleotide sequence that is at least 80 % homologous to at least one nucleotide sequence of (a) or (b).

15. (Amended) A nucleic acid encoding a recombinant S-layer protein selected from the group consisting of

(i) a nucleic acid comprising a nucleotide sequence from position 1 to 3684 of SEQ ID NO. 1,

(ii) a nucleic acid comprising a nucleotide sequence corresponding to the nucleic acid of (i) within the scope of the degeneracy of the genetic code, and

(iii) a nucleic acid comprising a nucleotide sequence which hybridizes with at least one of the nucleic acids from (i) or (ii) under stringent conditions, wherein the nucleic acid contains at least one peptide or polypeptide-coding insertion within the region encoding the S-layer protein.

16. (Amended) The nucleic acid as claimed in claim 15, wherein the insertion is a site located at position 582, 878, 917, 2504 or 2649 of the nucleotide sequence of SEQ ID NO. 1.

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17. (Twice Amended) A vector comprising at least one copy of a nucleic acid as claimed in claim 16.

19. (Amended) A transformed cell comprising a nucleic acid as claimed in claim 15 or 16 or a vector as claimed in claim 17, wherein the cell is a gram-negative prokaryotic cell.

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20. (Twice Amended) A cell as claimed in claim 19, comprising a recombinant S-layer structure.

46. (Amended) A transformed cell wherein the cell is transformed with a nucleic acid as claimed in claim 15.

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47 (Amended) A transformed cell wherein the cell is transformed with a vector as claimed in claim 17.

Please add the following new claims:

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--~~48~~. The process according to claim 1, wherein the nucleic acid of (i) does not contain a signal peptide-coding region.

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~~49.~~ The process according to claim 1, wherein under stringent conditions hybridization is obtainable after washing at 55°C in an aqueous low salt buffer comprising 0.2 x SSC.

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~~50.~~ The process according to claim 49, wherein under stringent conditions hybridization is obtainable after washing at 60°C.

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~~51.~~ The nucleic acid according to claim 15, wherein the nucleic acid of (i) does not contain a signal peptide-coding region.

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~~52.~~ The nucleic acid according to claim 15, wherein under stringent conditions hybridization is obtainable after washing at 55°C in an aqueous low salt buffer comprising 0.2 x SSC.

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~~53.~~ The nucleic acid according to claim 52, wherein under stringent conditions hybridization is obtainable after washing at 60°C.

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~~54.~~ The cell as claimed in claim 19, wherein the cell is E. coli in origin.

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~~55.~~ The process as claimed in claim 7, wherein the herpes virus comprises herpes virus 6 or FMDV. --